

TA-F235R

SERVICE MANUAL

AEP Model

UK Model

E Model

Australian Model



SPECIFICATIONS

Amplifier

Continuous RMS power output (both channels driven simultaneously)
Except for Germany

DIN, 1 kHz	8 ohms	40 W + 40 W
20 Hz – 20 kHz (0.03%)	8 ohms	30 W + 30 W

Germany

DIN, 1 kHz	4 ohms	40 W + 40 W
20 Hz – 20 kHz (0.05%)	4 ohms	30 W + 30 W

Input

Input jack	Jack type	Sensitivity	impedance
PHONO (MM)	Phono	2.0 mV	50 kilohms
TUNER, CD, DAT/TAPE 1 TAPE 2	Phono	150 mV	50 kilohms

S/N

PHONO (MM)	70 dB
TUNER, CD, DAT/TAPE 1 TAPE 2	100 dB

Output

Output jack	Jack type	Voltage/impedance
REC OUT	Phono jack	Voltage 450 mV impedance 1 kohm
HEADPHONES	Stereo phono jack	Accepts low and high impedance headphones

Tone controls

	Response	Turnover frequency
BASS	± 10 dB (100 Hz)	400 Hz
TREBLE	± 10 dB (10 kHz)	4 kHz

Harmonic distortion Less than 0.008% at 10 W output
Intermodulation (IM) distortion (60 Hz : 7 kHz = 4 : 1) Less than 0.008% at 10 W output
Frequency response PHONO: RIAA equalization curve ± 0.5 dB
TUNER, CD, DAT/TAPE 1, TAPE 2: 7 Hz – 100 kHz ± 3 dB
Residual noise Less than 170 μ V (network A)
Damping factor 50 (8 ohms, 1 kHz)

General System
Preamplifier: Low-noise, equalizer amplifier
Power amplifier: Pure-complementary SEPP OCL power amplifier with all stages directly coupled
Power requirements Model for UK, Australian: 240 V AC, 50/60 Hz
Models for European countries: 220 V – 230 V AC, 50/60 Hz
Models for other countries: 120 V 220 V or 240 V AC adjustable, 50/60 Hz

Power Consumption Model for Scandinavian countries, Switzerland, Spain and Portugal 100 W
Model for other European countries 100 W
Model for other countries 100 W

Dimension Approx. 430 × 115 × 310 mm (w/h/d)
(17 × 4 1/2 × 12 1/8 inches)

Weight Approx. 5.0 kg (13 lb 14 oz)
Supplied accessories Remote commander RM-S312 (1)
Sony SUM-3 (NS) batteries (2)

The above values are measured at 230 V AC. (AEP model)

Design and specifications are subject to change without notice.

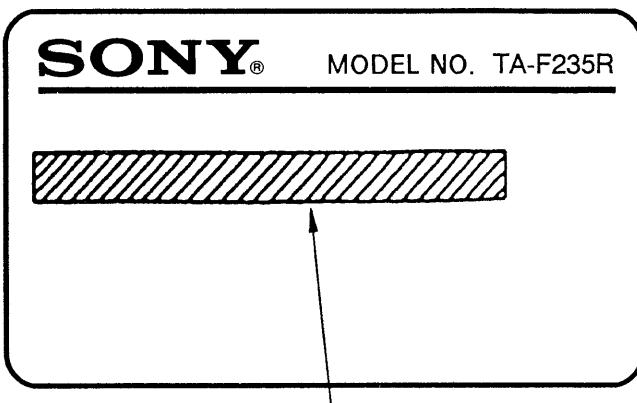
INTEGRATED STEREO AMPLIFIER
SONY[®]

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MODEL IDENTIFICATION

— Specification Label Printed on Back Panel —



AEP, Germany model: AC 220 -230 V ~50/60 Hz
Australian, UK model: AC 240 V ~50/60 Hz
E model: AC 120/220/240 V~50/60 Hz

Note :

There are two type of AEP models which are depend on countries.

AEP2 model : Model for Scandinavian countries,
Switzerland, Spain and Portugal

AEP1 model : Model for other European countries

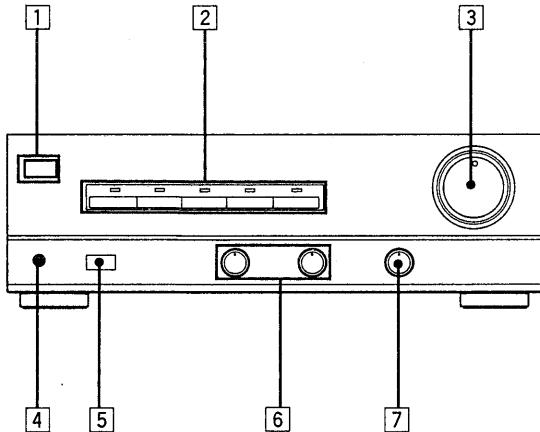
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK OR DOTTED LINE WITH MARK ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1 GENERAL

This section is extracted from instruction manual.

Identifying the Parts and Controls

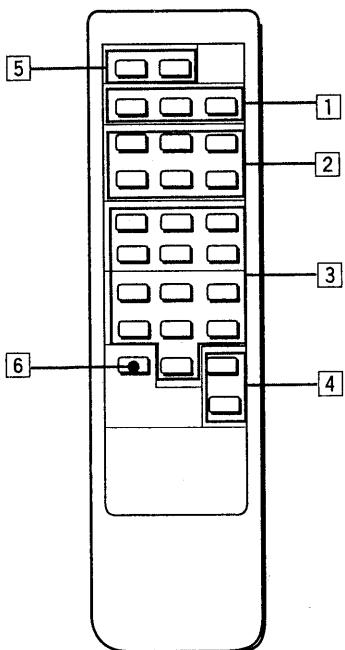


This section describes about each name of this amplifier and remote commander.

Front Panel

- [1] POWER switch
- [2] Function selectors and indicators
- [3] VOLUME control and indicator
Adjusts the sound level.
- [4] HEADPHONES jack
- [5] Remote control sensor
- [6] TONE (BASS/TREBLE) controls
- [7] BALANCE control

Remote Commander



- [1] TUNER operation buttons
TUNER: Select the TUNER mode.
PRESET +/- buttons: Select the preset station.
- [2] CD operation buttons
◀◀/▶▶: Automatic music sensor.
D. (Disc) SKIP: Disc skip (for CD player equipped with a multi-disc changer)
▶: The amplifier enters the CD mode and the CD player starts playback automatically.
■: Stop.
■: Pause.
- [3] TAPE 2 DECK A/DECK B operation buttons
◀◀/▶▶: Fast winding.
■: Stop.
◀: The amplifier enters the TAPE 2 mode and the tape deck starts reverse playback automatically.
▶: The amplifier enters the TAPE 2 mode and the tape deck starts forward playback automatically.
●: Recording.
■: Pause. (Only for DECK B)
- [4] VOL (Volume) +/- buttons
- [5] PHONO operation buttons
START: Pressing START automatically selects the PHONO mode on the amplifier and starts playback of the turntable system.
STOP: Stops playback of the turntable system.
- [6] DAT/TAPE 1 button
Selects the DAT or TAPE 1 mode.

SECTION 2

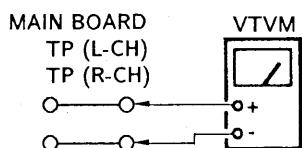
ELECTRICAL ADJUSTMENTS

Note :

1. DC BIAS adjustments should be made within 2 to 3 minutes after the POWER switch is turned on (POWER ON).
2. After replacing the power transistors, DC BIAS adjustments should be made.

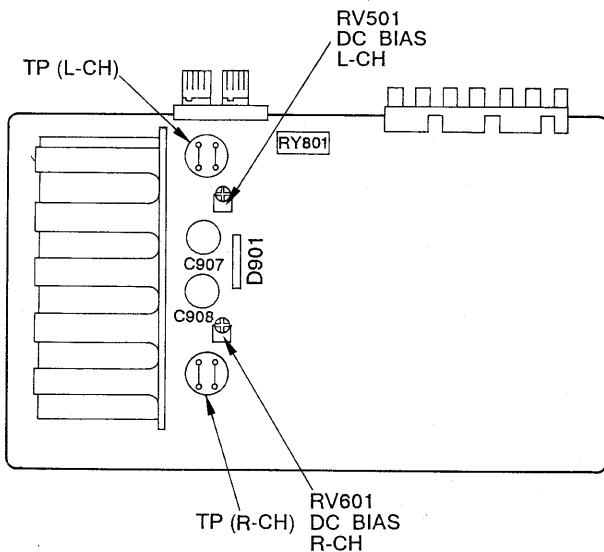
DC Bias Adjustment (with no signal input)

Procedure :



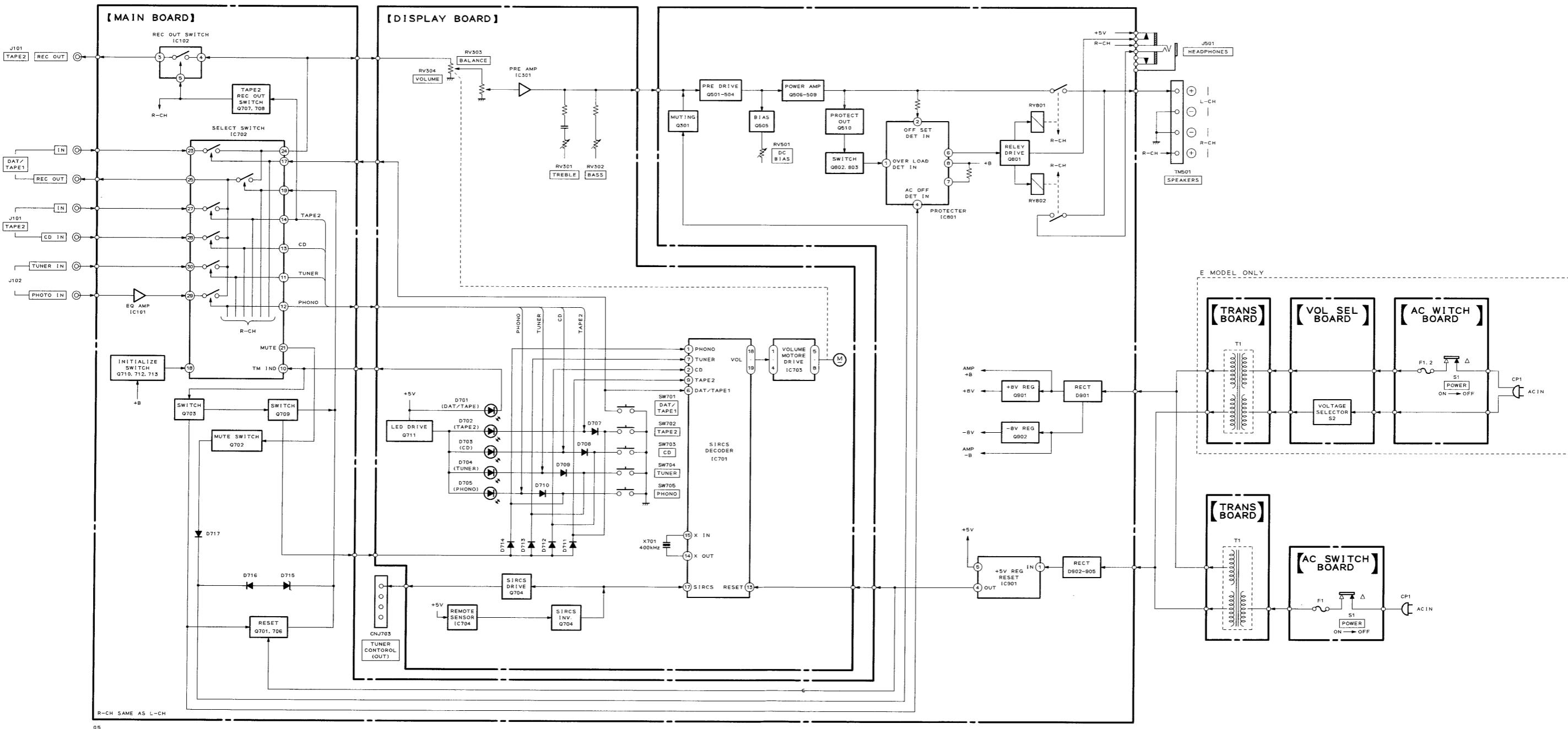
	Adjustment part	Reading on VTVM
L-CH	RV501	6.5mV
R-CH	RV601	6.5mV

[ADJUSTMENT LOCATIONS]



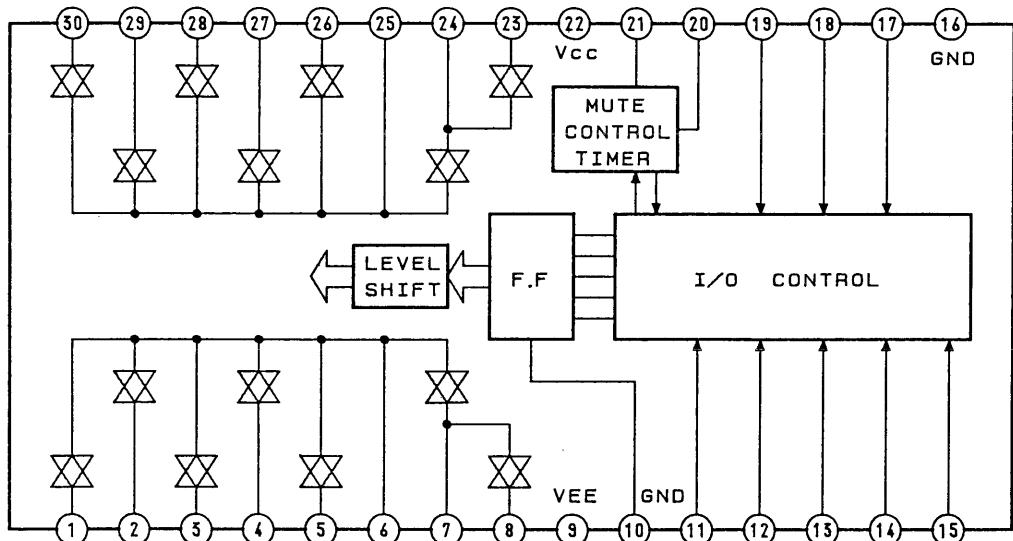
SECTION 3 DIAGRAMS

3-1. BLOCK DIAGRAM

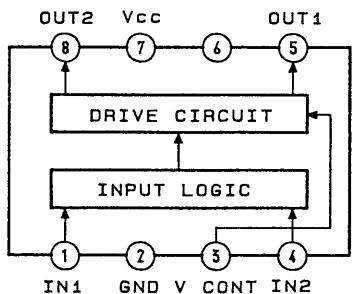


• IC BLOCK DIAGRAMS

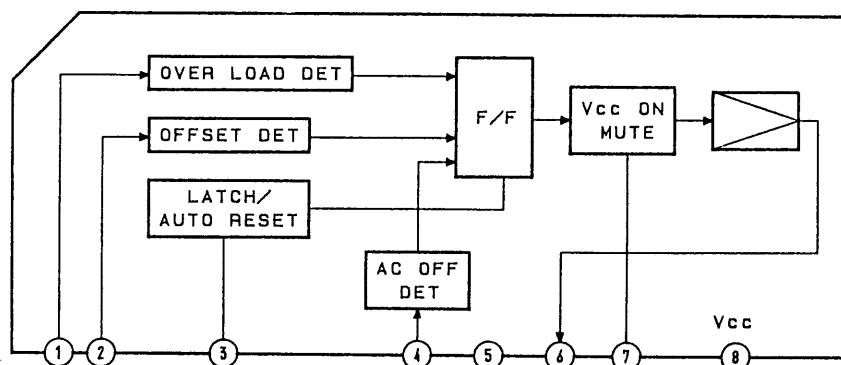
IC702 LC7818



IC703 LB1639



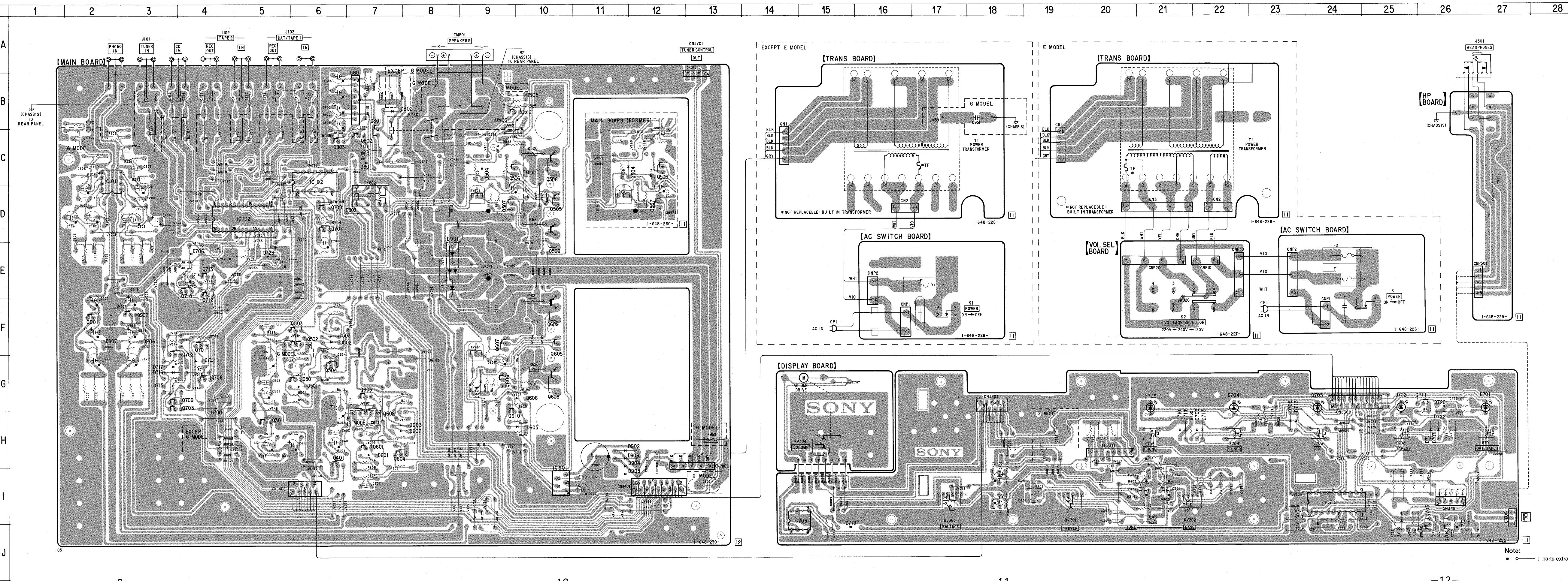
IC801 UPC1237HA

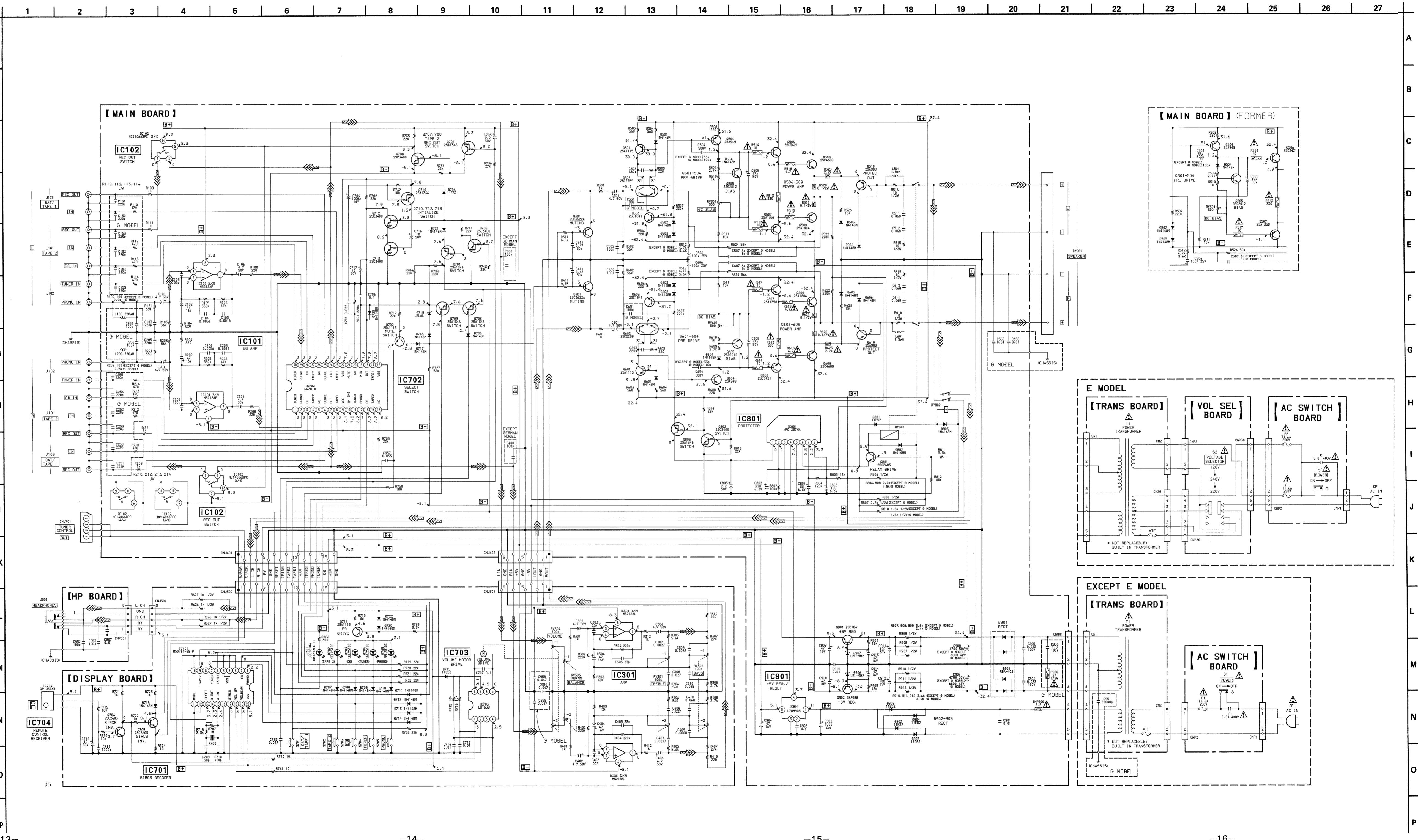


3-2. IC701 FUNCTION CONTROLLER (M50761-291P).

Micro Processor M50761-291P is used for control the volume up/down, function select and power on/standby by SIRCS code signal input and power on/standby key code signal input.

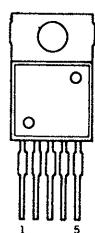
Pin No.	Pin Name	I /O	Description						
1	PHONO	O	Function select output. (one-shot output) (L : PHONO)						
2	CD	O	Function select output. (one-shot output) (L : CD)						
3	AUX	O	Function select output. (one-shot output) (L : AUX)						
4	CN VSS	—	Ground						
5	VSS	—	Ground						
6	TAPE1	O	Function select output. (one-shot output) (L : TAPE1)						
7	TUNER	O	Function select output. (one-shot output) (L : TUNER)						
8	POWER	O	Power supply ON/OFF relay (RY1) control output. (L : POWER ON, H : POWER OFF)						
9	TAPE2	O	Function select output. (one-shot output) (L : TAPE2)						
10	POWER IN	I	POWER ON/STANDBY key switch input.						
11	MODE	I	Mode select input. This model is used "L" level only. <table border="1" style="margin-left: 20px;"> <tr> <td></td><td>POWER ON/OFF mode</td></tr> <tr> <td>H</td><td>USED</td></tr> <tr> <td>L</td><td>NOT USED</td></tr> </table>		POWER ON/OFF mode	H	USED	L	NOT USED
	POWER ON/OFF mode								
H	USED								
L	NOT USED								
12	NC	—	Ground						
13	RESET	I	Reset signal input.						
14	X OUT	O	Ceramic vibilator connection terminal. (400Hz)						
15	X IN	O	Ceramic vibilator connection terminal. (400Hz)						
16	NC	—	Ground						
17	SIRCS	I	SIRCS code signal input. (serial input)						
18	VOL UP	O	Volume motor up control output. (contineous output)						
19	VOL DOWN	O	Volume motor down control output. (contineous output)						
20	VDD	—	+5V power supply.						





• SEMICONDUCTOR LEAD LAYOUTS

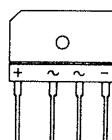
L78MR05



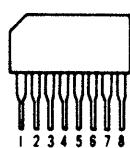
2SA1804-RO
2SC4689-RO



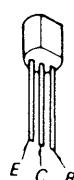
RBA-402



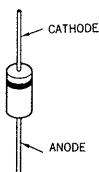
M5218AP
 μ PC1237HA



2SA949-OY
2SA988-PAFAEA
2SC1841-PAFAEA



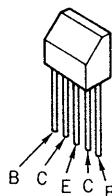
1N4148M



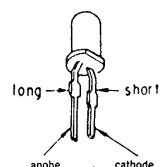
DTA124ES
DTC124ES
2SC2603-EF
2SC3622A-LK



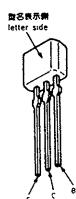
2SC2259-FG



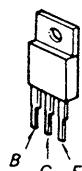
SEL3510C-CD
SEL3810A-CD



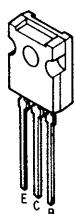
2SA1175-HFE



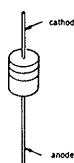
2SD2012



2SA1358-OY
2SC3421-OY



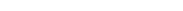
HZS6A3L
UZL-9M2
UZL-9M3
11ES2



SECTION 4

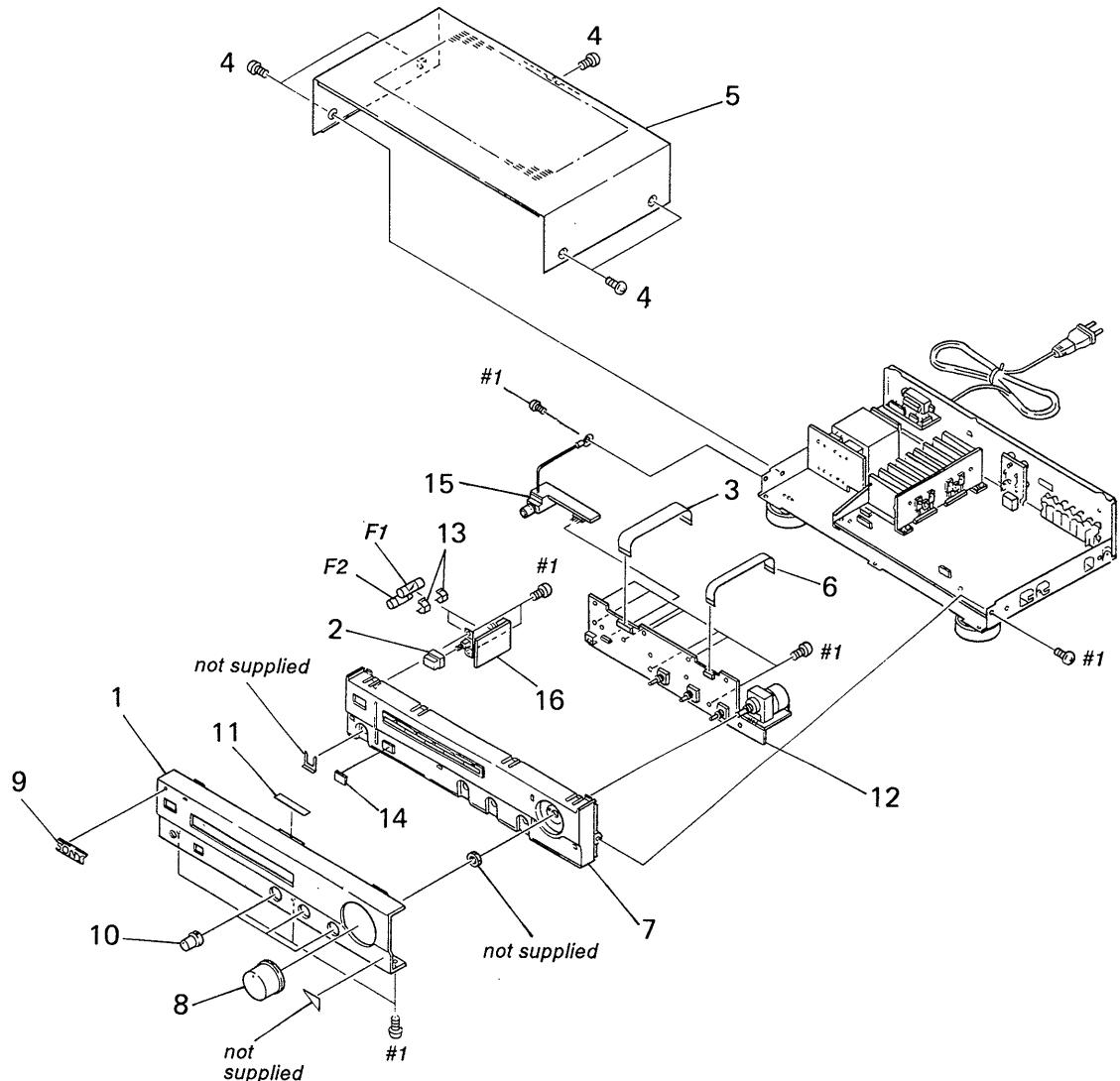
EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
KNOB, BALANCE (WHITE) . . . (RED)

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

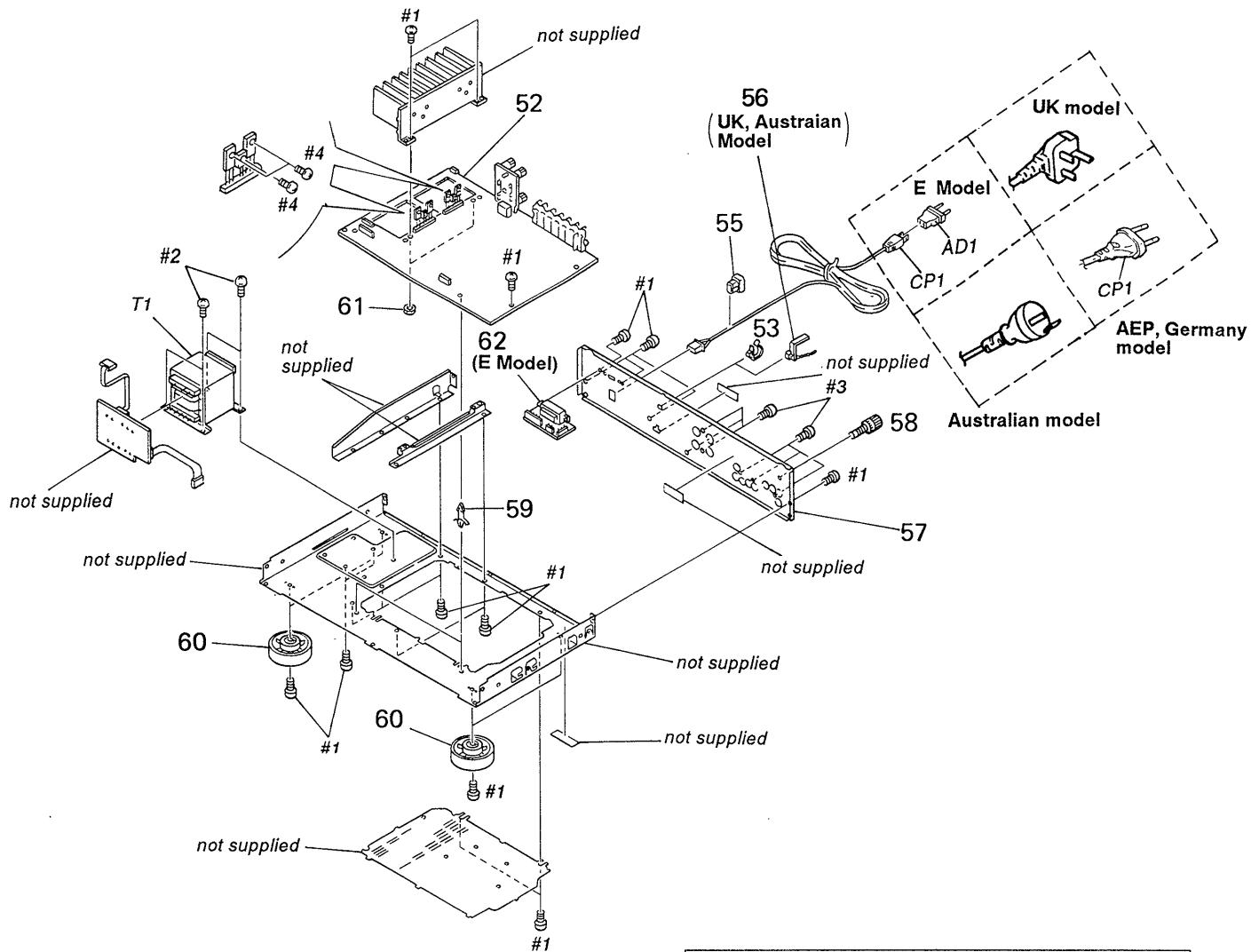
The components identified by mark **▲** or dotted line with mark **▲** are critical for safety.
Replace only with part number specified.

(1) FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-958-635-01	PANEL, FRONT		11	9-911-837-XX	CUSHION	
2	4-917-460-01	KNOB, POWER		* 12	A-4360-805-A	DISPLAY BOARD, COMPLETE (AEP, UK, E, AUSTRALIAN)	
3	1-751-432-11	WIRE (FLAT TYPE) (17 CORE)		* 12	A-4360-806-A	DISPLAY BOARD, COMPLETE (G)	
4	3-704-366-01	SCREW (CASE) (M3X8)		13	1-533-293-11	FUSE HOLDER	
* 5	4-937-817-11	CASE		14	4-931-911-01	FILTER	
6	1-751-433-11	WIRE (FLAT TYPE) (9 OCRE)		15	1-648-229-11	PC BOARD, HP	
7	X-4943-696-1	BASE ASSY, PANEL		16	1-648-226-11	PC BOARD, AC SW	
8	X-4943-697-1	KNOB ASSY		△F1	1-532-285-00	FUSE T1. 6A 250V	
9	4-942-568-01	EMBLEM (NO. 5), SONY		△F2	1-532-285-00	FUSE T1. 6A 250V (E)	
10	4-958-636-01	KNOB					

(2) CHASSIS SECTION



Note: The components identified by mark **A** or dotted line with mark **A** are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
52	A-4360-799-A	MAIN BOARD, COMPLETE (AE1)	
* 52	A-4360-800-A	MAIN BOARD, COMPLETE (AE2)	
* 52	A-4360-801-A	MAIN BOARD, COMPLETE (G)	
* 52	A-4360-802-A	MAIN BOARD, COMPLETE (UK)	
* 52	A-4360-803-A	MAIN BOARD, COMPLETE (E)	
* 52	A-4360-804-A	MAIN BOARD, COMPLETE (AUSTRALIAN)	
* 53	4-949-235-01	HOOK (AEP, E, G)	
* 55	3-703-244-00	BUSHING (2104), CORD (AEP, UK, G, AUSTRALIAN)	
* 55	3-703-571-11	BUSHING (S) (4516), CORD (E)	
56	4-956-370-02	BAND, PLUG FIXED (UK, AUSTRALIAN)	
* 57	4-958-640-01	PANEL, BACK (AE1)	
* 57	4-958-640-11	PANEL, BACK (AE2)	
* 57	4-958-640-21	PANEL, BACK (G)	
* 57	4-958-640-31	PANEL, BACK (UK)	
* 57	4-958-640-41	PANEL, BACK (E)	

Ref. No.	Part No.	Description	Remark
* 57	4-958-640-51	PANEL, BACK (AUSTRALIAN)	
58	4-947-010-01	SCREW, FEEDER FIXED	
* 59	3-346-265-11	HOLDER, PC BOARD	
60	4-943-148-42	FOOT (F58175SW)	
61	4-960-258-01	WASHER	
62	1-648-227-11	PC BOARD, VOLSEL (E)	
△AD1	1-569-007-11	ADAPTER, CONVERSION 2P (E)	
△CP1	1-575-651-21	CORD, POWER (AEP, G)	
△CP1	1-696-027-11	CORD, POWER (E)	
△CP1	1-696-586-11	CORD, POWER (UK)	
△CP1	1-696-845-11	CORD, POWER (AUSTRALIAN)	
△T1	1-423-676-11	TRANSFORMER, POWER (AEP)	
△T1	1-423-677-11	TRANSFORMER, POWER (G)	
△T1	1-423-678-11	TRANSFORMER, POWER (E)	
△T1	1-423-681-11	TRANSFORMER, POWER (UK, AUSTRALIAN)	

SECTION 5

ELECTRICAL PARTS LIST

NOTE:-

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- **RESISTORS**
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS

In each case, $u:\mu$, for example:

uA .. : μA ..	uPA .. : μPA ..
uPB .. : μPB ..	uPC .. : μPC ..
uPD .. : μPD ..	
- CAPACITORS

uF : μF
- COILS

uH : μH
- G:German

The components identified by mark Δ or dotted line with mark. Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark		
*	1-648-226-11	AC SW BOARD			

< CAPACITOR >					
△C1	1-161-744-00	CERAMIC	0.01uF 400V		
< CONNECTOR >					
* CNP1	1-580-230-31	PIN, CONNECTOR (PC BOARD)	2P		
CNP2	1-564-321-00	PIN, CONNECTOR 2P	(AEP, UK, G, AUSTRALIAN)		
CNP2	1-564-687-11	PIN, CONNECTOR 3P	(E)		
< FUSE >					
△F1	1-532-285-00	FUSE T1. 6A	250V		
△F2	1-532-285-00	FUSE T1. 6A	250V (E)		
< SWITCH >					
△S1	1-572-267-51	SWITCH, PUSH (AC POWER) (1 KEY)			

A-4360-805-A DISPLAY BOARD, COMPLETE (AEP, UK, E AUSTRALIAN)					

A-4360-806-A DISPLAY BOARD, COMPLETE (G)					

*	1-533-293-11	FUSE HOLDER			
*	1-690-880-31	LEAD (WITH CONNECTOR)	(G)		
< CAPACITOR >					
C302	1-123-369-00	ELECT	4. 7uF	20%	50V
C303	1-162-211-31	CERAMIC	33PF	5%	50V
C304	1-123-306-00	ELECT	47uF	20%	10V
C305	1-162-211-31	CERAMIC	33PF	5%	50V
C306	1-123-369-00	ELECT	4. 7uF	20%	50V
C307	1-130-476-00	MYLAR	0.0027uF	5%	50V

Ref. No.	Part No.	Description		Remark
C308	1-130-488-00	MYLAR	0.027uF	5% 50V
C309	1-130-481-00	MYLAR	0.0068uF	5% 50V
C310	1-130-493-00	MYLAR	0.068uF	5% 50V
C402	1-123-369-00	ELECT	4.7uF	20% 50V
C403	1-162-211-31	CERAMIC	33PF	5% 50V
C404	1-123-306-00	ELECT	47uF	20% 10V
C405	1-162-211-31	CERAMIC	33PF	5% 50V
C406	1-123-369-00	ELECT	4.7uF	20% 50V
C407	1-130-476-00	MYLAR	0.0027uF	5% 50V
C408	1-130-488-00	MYLAR	0.027uF	5% 50V
C409	1-130-481-00	MYLAR	0.0068uF	5% 50V
C410	1-130-493-00	MYLAR	0.068uF	5% 50V
C707	1-164-159-11	CERAMIC	0.1uF	50V
C709	1-162-284-31	CERAMIC	150PF	10% 50V
C710	1-162-284-31	CERAMIC	150PF	10% 50V
C711	1-162-294-31	CERAMIC	0.001uF	10% 50V
C712	1-124-907-11	ELECT	10uF	20% 50V
C713	1-162-294-31	CERAMIC	0.001uF	10% 50V
C714	1-162-294-31	CERAMIC	0.001uF	10% 50V
C715	1-130-488-00	MYLAR	0.027uF	5% 50V
C951	1-164-097-11	CERAMIC	0.022uF	50V (G)
C954	1-136-161-00	FILM	0.047uF	5% 50V (G)
C958	1-136-161-00	FILM	0.047uF	5% 50V (G)
C959	1-136-161-00	FILM	0.047uF	5% 50V (G)

< CONNECTOR >

CNJ300 1-750-234-11 CONNECTOR, FFC/FPC 17P
CNJ301 1-750-586-11 CONNECTOR FFC/FPC 9P

< DIODE >

D701	8-719-313-72	LED	SEL3810A-CD
D702	8-719-018-46	LED	SEL3510C-CD
D703	8-719-018-46	LED	SEL3510C-CD
D704	8-719-018-46	LED	SEL3510C-CD
D705	8-719-018-46	LED	SEL3510C-CD
D707	8-719-987-63	DIODE	1N4148M

Ref. No.	Part No.	Description		Remark	Ref. No.	Part No.	Description		Remark
D708	8-719-987-63	DIODE	1N4148M		R707	1-247-903-00	CARBON	1M	5% 1/4W
D712	8-719-987-63	DIODE	1N4148M		R710	1-249-399-11	CARBON	33	5% 1/4W F
D709	8-719-987-63	DIODE	1N4148M		R715	1-249-429-11	CARBON	10K	5% 1/4W
D710	8-719-987-63	DIODE	1N4148M		R716	1-249-429-11	CARBON	10K	5% 1/4W
D711	8-719-987-63	DIODE	1N4148M		R718	1-249-423-11	CARBON	3.3K	5% 1/4W F
D713	8-719-987-63	DIODE	1N4148M		R719	1-249-429-11	CARBON	10K	5% 1/4W
D714	8-719-987-63	DIODE	1N4148M		R720	1-249-429-11	CARBON	10K	5% 1/4W
D718	8-719-987-63	DIODE	1N4148M		R721	1-249-417-11	CARBON	1K	5% 1/4W F
D719	8-719-200-82	DIODE	11ES2		R722	1-249-429-11	CARBON	10K	5% 1/4W
D720	8-719-987-63	DIODE	1N4148M		R723	1-249-417-11	CARBON	1K	5% 1/4W F
D722	8-719-987-63	DIODE	1N4148M		R724	1-249-393-11	CARBON	10	5% 1/4W F
< IC >									
IC301	8-759-634-50	IC	M5218AL		R729	1-249-433-11	CARBON	22K	5% 1/4W
IC701	8-759-077-08	IC	M50761-291P		R730	1-249-433-11	CARBON	22K	5% 1/4W
IC703	8-759-820-62	IC	LB1639		R731	1-249-433-11	CARBON	22K	5% 1/4W
IC704	8-749-923-43	IC	GP1U57XB		R732	1-249-433-11	CARBON	22K	5% 1/4W
< TRANSISTOR >									
Q704	8-729-620-05	TRANSISTOR	2SC2603-EF		< VARIABLE RESISTOR >				
Q705	8-729-620-05	TRANSISTOR	2SC2603-EF		RV301	1-223-397-11	RES, VAR, CARBON	100K/100K	
Q711	8-729-119-76	TRANSISTOR	2SA1175-HFE		RV302	1-223-397-11	RES, VAR, CARBON	100K/100K	
< RESISTOR >									
R301	1-259-428-11	CARBON	1K	5% 1/6W	RV303	1-223-396-11	RES, VAR, CARBON	100K/100K	
R302	1-259-484-11	CARBON	220K	5% 1/6W	RV304	1-223-395-11	RES, VAR, CARBON	100K/100K	
R303	1-259-454-11	CARBON	12K	5% 1/6W	< SWITCH >				
R304	1-259-484-11	CARBON	220K	5% 1/6W	S701	1-554-303-21	SWITCH, TACTILE (DAT/TAPE1)		
R305	1-259-446-11	CARBON	5.6K	5% 1/6W	S702	1-554-303-21	SWITCH, TACTILE (TAPE2)		
R306	1-259-422-11	CARBON	560	5% 1/6W	S703	1-554-303-21	SWITCH, TACTILE (CD)		
R307	1-259-462-11	CARBON	27K	5% 1/6W	S704	1-554-303-21	SWITCH, TACTILE (TUNER)		
R308	1-259-438-11	CARBON	2.7K	5% 1/6W	S705	1-554-303-21	SWITCH, TACTILE (PHONO)		
R310	1-259-412-11	CARBON	220	5% 1/6W	< VIBRATOR >				
R312	1-259-428-11	CARBON	1K	5% 1/6W	X700	1-577-077-21	OSCILLATOR, CERAMIC		
R401	1-259-428-11	CARBON	1K	5% 1/6W	*****				
R402	1-259-484-11	CARBON	220K	5% 1/6W	* 1-648-229-11	HP BOARD			
R403	1-259-454-11	CARBON	12K	5% 1/6W	*****				
R404	1-259-484-11	CARBON	220K	5% 1/6W	< CAPACITOR >				
R405	1-259-446-11	CARBON	5.6K	5% 1/6W	C807	1-136-153-00	FILM	0.01uF	5% 50V
R406	1-259-422-11	CARBON	560	5% 1/6W	C952	1-162-282-31	CERAMIC	100PF	10% 50V
R407	1-259-462-11	CARBON	27K	5% 1/6W	C953	1-162-282-31	CERAMIC	100PF	10% 50V
R408	1-259-438-11	CARBON	2.7K	5% 1/6W	< CONNECTOR >				
R410	1-259-412-11	CARBON	220	5% 1/6W	CNP501	1-506-906-11	PIN, CONNECTOR 5P		
R412	1-259-428-11	CARBON	1K	5% 1/6W					
R526	1-247-752-11	CARBON	1K	5% 1/2W					
R527	1-247-752-11	CARBON	1K	5% 1/2W					
R626	1-247-752-11	CARBON	1K	5% 1/2W					
R627	1-247-752-11	CARBON	1K	5% 1/2W					
R706	1-247-818-11	CARBON	300	5% 1/4W					

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark			
< JACK >										
J501	1-563-347-11	JACK, LARGE TYPE (HEADPHONES)		C411	1-124-902-00	ELECT	0.47uF 20% 50V			

	A-4360-799-A	MAIN BOARD, COMPLETE (AE1)		C501	1-123-369-00	ELECT	4.7uF 20% 50V			
	*****			C502	1-164-073-11	CERAMIC	100PF 10% 50V			
*	A-4360-800-A	MAIN BOARD, COMPLETE (AE2)		C503	1-164-083-11	CERAMIC	680PF 10% 50V			
*	*****			C504	1-101-810-00	CERAMIC	100PF 5% 500V (G)			
*	A-4360-802-A	MAIN BOARD, COMPLETE (UK)		C504	1-102-233-00	CERAMIC	33PF 10% 500V (AEP, UK, E, AUSTRALIAN)			
*	*****			C505	1-124-910-11	ELECT	47uF 20% 50V			
*	A-4360-801-A	MAIN BOARD, COMPLETE (G)		C506	1-124-122-11	ELECT	100uF 20% 16V			
*	*****			C507	1-102-943-00	CERAMIC	6.0PF +0.5PF 50V (AEP, UK, E, AUSTRALIAN)			
*	A-4360-804-A	MAIN BOARD, COMPLETE (AUSTRALIAN)		C507	1-164-044-11	CERAMIC	8PF 0.5PF 50V (G)			
	*****			C511	1-136-163-00	FILM	0.068uF 5% 50V			
	1-648-230-11 MAIN BOARD			C512	1-136-163-00	FILM	0.068uF 5% 50V			
	7-685-647-79	SCREW +BVTP	3X10 TYPE2 IT-3	C550	1-136-153-00	FILM	0.01uF 5% 50V (G)			
	*****			C551	1-162-282-31	CERAMIC	100PF 10% 50V (G)			
< CAPACITOR >										
C101	1-123-369-00	ELECT	4.7uF 20% 50V	C601	1-123-369-00	ELECT	4.7uF 20% 50V			
C102	1-124-910-11	ELECT	47uF 20% 50V	C602	1-164-073-11	CERAMIC	100PF 10% 50V			
C103	1-164-077-11	CERAMIC	220PF 10% 50V	C603	1-164-083-11	CERAMIC	680PF 10% 50V			
C104	1-130-480-00	MYLAR	0.0056uF 5% 50V	C604	1-101-810-00	CERAMIC	100PF 5% 500V (G)			
C105	1-104-842-91	MYLAR	0.0016uF 5% 50V	(AEP, UK, E, AUSTRALIAN)			C604	1-102-233-00	CERAMIC	33PF 10% 500V (AEP, UK, E, AUSTRALIAN)
C106	1-123-369-00	ELECT	4.7uF 20% 50V	C605	1-124-910-11	ELECT	47uF 20% 50V			
C108	1-164-073-11	CERAMIC	100PF 10% 50V	C606	1-124-122-11	ELECT	100uF 20% 16V			
C150	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C607	1-102-943-00	CERAMIC	6.0PF +0.5PF 50V (AEP, UK, E, AUSTRALIAN)			
C151	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C607	1-164-044-11	CERAMIC	8PF 0.5PF 50V (G)			
C152	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C611	1-136-163-00	FILM	0.068uF 5% 50V			
C153	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C612	1-136-163-00	FILM	0.068uF 5% 50V			
C154	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C650	1-136-153-00	FILM	0.01uF 5% 50V (G)			
C155	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C651	1-162-282-31	CERAMIC	100PF 10% 50V (G)			
C201	1-123-369-00	ELECT	4.7uF 20% 50V	C701	1-161-494-00	CERAMIC	0.022uF 25V			
C202	1-124-910-11	ELECT	47uF 20% 50V	C703	1-124-925-11	ELECT	2.2uF 20% 100V			
C203	1-164-077-11	CERAMIC	220PF 10% 50V	C704	1-126-926-11	ELECT	1000uF 20% 10V			
C204	1-130-480-00	MYLAR	0.0056uF 5% 50V	C706	1-164-159-11	CERAMIC	0.1uF 50V			
C205	1-104-842-91	MYLAR	0.0016uF 5% 50V	C716	1-124-907-11	ELECT	10uF 20% 50V			
C206	1-123-369-00	ELECT	4.7uF 20% 50V	C717	1-124-907-11	ELECT	10uF 20% 50V			
C208	1-164-073-11	CERAMIC	100PF 10% 50V	C802	1-126-176-11	ELECT	220uF 20% 10V			
C250	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C804	1-124-034-51	ELECT	33uF 20% 16V			
C251	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C805	1-124-925-11	ELECT	2.2uF 20% 100V			
C252	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C806	1-124-443-00	ELECT	100uF 20% 10V			
C253	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C901	1-136-153-00	FILM	0.01uF 5% 50V			
C254	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C902	1-124-557-11	ELECT	1000uF 20% 25V			
C255	1-162-286-31	CERAMIC	220PF 10% 50V (G)	C903	1-136-165-00	FILM	0.1uF 5% 50V			
C300	1-164-073-11	CERAMIC	100PF 10% 50V	C904	1-123-306-00	ELECT	47uF 20% 10V			
	(AEP, UK, E, AUSTRALIAN)			C905	1-106-379-12	MYLAR	0.033uF 5% 200V			
C311	1-124-902-00	ELECT	0.47uF 20% 50V	C906	1-106-379-12	MYLAR	0.033uF 5% 200V			
C400	1-164-073-11	CERAMIC	100PF 10% 50V	(AEP, UK, E, AUSTRALIAN)			C907	1-104-836-11	ELECT	4700uF 20% 50V (AEP, UK, E, AUSTRALIAN)

Ref. No.	Part No.	Description		Remark	Ref. No.	Part No.	Description		Remark
C907	1-104-837-11	ELECT	6800uF	20%	42V (G)	D905	8-719-200-82	DIODE	11ES2
C908	1-104-836-11	ELECT	4700uF	20%	50V	D906	8-719-001-15	DIODE	UZL-9M2
		(AEP, UK, E, AUSTRALIAN)				D907	8-719-001-18	DIODE	UZL-9M3
C908	1-104-837-11	ELECT	6800uF	20%	42V (G)				< IC >
C909	1-123-306-00	ELECT	47uF	20%	10V				
C910	1-123-306-00	ELECT	47uF	20%	10V	IC101	8-759-634-51	IC	M5218AP
C911	1-124-122-11	ELECT	100uF	20%	50V	IC102	8-759-000-49	IC	MC14066BPC
C912	1-124-122-11	ELECT	100uF	20%	50V	IC702	8-759-802-52	IC	LC7818
C913	1-123-306-00	ELECT	47uF	20%	10V	IC801	8-759-111-68	IC	uPC1237HA
C914	1-123-306-00	ELECT	47uF	20%	10V	IC901	8-759-820-84	IC	L78MR05
C915	1-136-153-00	FILM	0.01uF	5%	50V				< JACK >
C950	1-130-789-00	FILM	1uF	5%	100V (G)	J101	1-566-883-81	JACK, PIN 6P	
C955	1-164-073-11	CERAMIC	100PF	10%	50V (G)	J102	1-566-882-51	JACK, PIN 4P	
C956	1-164-073-11	CERAMIC	100PF	10%	50V (G)	J103	1-566-882-51	JACK, PIN 4P	
C957	1-106-379-12	MYLAR	0.033uF	5%	200V				
< CONNECTOR >					< COIL >				
CNJ401	1-750-227-11	CONNECTOR, FFC/FPC	17P			L100	1-410-979-11	INDUCTOR	220uH (G)
CNJ402	1-750-598-11	CONNECTOR, FFC/FPC	9P			L200	1-410-979-11	INDUCTOR	220uH (G)
CNJ701	1-566-213-11	PIN, CONNECTOR	4P			* L501	1-420-872-00	COIL, AIR CORE	1.9uHz
CNP801	1-564-242-00	PIN, CONNECTOR	5P			* L601	1-420-872-00	COIL, AIR CORE	1.9uHz
< DIODE >					< TRANSISTOR >				
D501	8-719-987-63	DIODE	1N4148M			Q301	8-729-141-26	TRANSISTOR	2SC3622A-LK
D502	8-719-987-63	DIODE	1N4148M			Q401	8-729-141-26	TRANSISTOR	2SC3622A-LK
D503	8-719-987-63	DIODE	1N4148M			Q501	8-729-119-76	TRANSISTOR	2SA1175-HFE
D504	8-719-987-63	DIODE	1N4148M			Q502	8-729-620-17	TRANSISTOR	2SC2259-FG
D505	8-719-987-63	DIODE	1N4148M			Q503	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA
D506	8-719-987-63	DIODE	1N4148M			Q504	8-729-021-74	TRANSISTOR	2SA949-0Y-TPE6
D601	8-719-987-63	DIODE	1N4148M			Q505	8-729-209-15	TRANSISTOR	2SD2012
D602	8-719-987-63	DIODE	1N4148M			Q506	8-729-020-82	TRANSISTOR	2SC3421-0Y
D603	8-719-987-63	DIODE	1N4148M			Q507	8-729-020-83	TRANSISTOR	2SA1358-0Y
D604	8-719-987-63	DIODE	1N4148M			Q508	8-729-021-75	TRANSISTOR	2SC4689-R0
D605	8-719-987-63	DIODE	1N4148M			Q509	8-729-021-76	TRANSISTOR	2SA1804-R0
D606	8-719-987-63	DIODE	1N4148M			Q510	8-729-140-82	TRANSISTOR	2SA988-PAFAEA
D700	8-719-987-63	DIODE	1N4148M			Q601	8-729-119-76	TRANSISTOR	2SA1175-HFE
D706	8-719-200-82	DIODE	11ES2			Q602	8-729-620-17	TRANSISTOR	2SC2259-FG
D715	8-719-933-35	DIODE	HZS6A3L			Q603	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA
D716	8-719-987-63	DIODE	1N4148M			Q604	8-729-021-74	TRANSISTOR	2SA949-0Y-TPE6
D717	8-719-987-63	DIODE	1N4148M			Q605	8-729-209-15	TRANSISTOR	2SD2012
D721	8-719-987-63	DIODE	1N4148M			Q606	8-729-020-82	TRANSISTOR	2SC3421-0Y
D723	8-719-987-63	DIODE	1N4148M			Q607	8-729-020-83	TRANSISTOR	2SA1358-0Y
D801	8-719-200-82	DIODE	11ES2			Q608	8-729-021-75	TRANSISTOR	2SC4689-R0
D802	8-719-987-63	DIODE	1N4148M			Q609	8-729-021-76	TRANSISTOR	2SA1804-R0
D803	8-719-987-63	DIODE	1N4148M			Q610	8-729-140-82	TRANSISTOR	2SA988-PAFAEA
D901	8-719-312-09	DIODE	RBA-402			Q701	8-729-900-63	TRANSISTOR	DTA124ES
D902	8-719-200-82	DIODE	11ES2			Q702	8-729-119-76	TRANSISTOR	2SA1175-HFE
D903	8-719-200-82	DIODE	11ES2			Q703	8-729-900-63	TRANSISTOR	DTA124ES
D904	8-719-200-82	DIODE	11ES2			Q706	8-729-900-36	TRANSISTOR	DTC124ES

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Q707	8-729-900-63	TRANSISTOR	DTA124ES	R506	1-247-704-11	CARBON	220 5% 1/4W
Q708	8-729-900-36	TRANSISTOR	DTC124ES	R507	1-247-887-00	CARBON	220K 5% 1/4W
Q709	8-729-900-63	TRANSISTOR	DTA124ES	R508	1-247-704-11	CARBON	220 5% 1/4W
Q710	8-729-900-63	TRANSISTOR	DTA124ES	R509	1-247-718-11	CARBON	2. 7K 5% 1/4W
				R510	1-247-713-11	CARBON	1K 5% 1/4W F
Q712	8-729-900-36	TRANSISTOR	DTC124ES	R511	1-247-725-11	CARBON	10K 5% 1/4W
Q713	8-729-900-36	TRANSISTOR	DTC124ES	R512	1-247-721-11	CARBON	4. 7K 5% 1/4W (AEP, UK, E, AUSTRALIAN)
Q801	8-729-620-05	TRANSISTOR	2SC2603-EF	R512	1-247-722-11	CARBON	5. 6K 5% 1/4W (G)
Q802	8-729-900-36	TRANSISTOR	DTC124ES	△R513	1-212-893-00	FUSIBLE	330 5% 1/4W F
Q803	8-729-900-63	TRANSISTOR	DTA124ES	△R514	1-212-857-00	FUSIBLE	10 5% 1/4W F
Q901	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA	R515	1-247-727-11	CARBON	10 5% 1/2W
Q902	8-729-140-82	TRANSISTOR	2SA988-PAFAEA	R516	1-247-727-11	CARBON	10 5% 1/2W
				△R517	1-212-857-00	FUSIBLE	10 5% 1/4W F
				△R518	1-212-849-00	FUSIBLE	4. 7 5% 1/4W F
R102	1-247-700-11	CARBON	100 5% 1/4W (AEP, UK, E, AUSTRALIAN)	△R519	1-212-849-00	FUSIBLE	4. 7 5% 1/4W F
R102	1-247-718-11	CARBON	2. 7K 5% 1/4W (G)	△R520	1-217-611-00	RES, METAL PLATE	0. 1 2W
R103	1-249-466-11	CARBON	56K 5% 1/4W	△R521	1-217-611-00	RES, METAL PLATE	0. 1 2W
R104	1-247-712-11	CARBON	820 5% 1/4W	R522	1-247-887-00	CARBON	220K 5% 1/4W
R105	1-214-958-00	METAL	560K 1% 1/4W	R523	1-249-431-11	CARBON	15K 5% 1/4W
R106	1-249-465-11	CARBON	47K 5% 1/4W				
R108	1-247-704-11	CARBON	220 5% 1/4W	R524	1-249-466-11	CARBON	56K 5% 1/4W
R109	1-247-713-11	CARBON	1K 5% 1/4W F	△R525	1-249-421-11	CARBON	2. 2K 5% 1/4W F
R110	1-247-708-11	CARBON	470 5% 1/4W (G)	R601	1-247-713-11	CARBON	1K 5% 1/4W F
R111	1-247-713-11	CARBON	1K 5% 1/4W F	R602	1-249-466-11	CARBON	56K 5% 1/4W
R112	1-247-708-11	CARBON	470 5% 1/4W (G)	R603	1-247-710-11	CARBON	560 5% 1/4W
R113	1-247-708-11	CARBON	470 5% 1/4W (G)	R604	1-247-710-11	CARBON	560 5% 1/4W
R114	1-247-708-11	CARBON	470 5% 1/4W (G)	R605	1-247-704-11	CARBON	220 5% 1/4W
R121	1-247-706-11	CARBON	330 5% 1/4W F	R606	1-247-704-11	CARBON	220 5% 1/4W
R202	1-247-700-11	CARBON	100 5% 1/4W (AEP, UK, E, AUSTRALIAN)	R607	1-247-887-00	CARBON	220K 5% 1/4W
R202	1-247-718-11	CARBON	2. 7K 5% 1/4W (G)	R608	1-247-704-11	CARBON	220 5% 1/4W
R203	1-249-466-11	CARBON	56K 5% 1/4W	R609	1-247-718-11	CARBON	2. 7K 5% 1/4W
R204	1-247-712-11	CARBON	820 5% 1/4W	R610	1-247-713-11	CARBON	1K 5% 1/4W F
R205	1-214-958-00	METAL	560K 1% 1/4W	R611	1-247-725-11	CARBON	10K 5% 1/4W
R206	1-249-465-11	CARBON	47K 5% 1/4W	R612	1-247-721-11	CARBON	4. 7K 5% 1/4W (AEP, UK, E, AUSTRALIAN)
R208	1-247-704-11	CARBON	220 5% 1/4W				
R209	1-247-713-11	CARBON	1K 5% 1/4W F	R612	1-247-722-11	CARBON	5. 6K 5% 1/4W (G)
R210	1-247-708-11	CARBON	470 5% 1/4W (G)	△R613	1-212-893-00	FUSIBLE	330 5% 1/4W F
R211	1-247-713-11	CARBON	1K 5% 1/4W F	△R614	1-212-857-00	FUSIBLE	10 5% 1/4W F
R212	1-247-708-11	CARBON	470 5% 1/4W (G)	R615	1-247-727-11	CARBON	10 5% 1/2W
R213	1-247-708-11	CARBON	470 5% 1/4W (G)	R616	1-247-727-11	CARBON	10 5% 1/2W
R214	1-247-708-11	CARBON	470 5% 1/4W (G)				
R221	1-247-706-11	CARBON	330 5% 1/4W F	△R617	1-212-857-00	FUSIBLE	10 5% 1/4W F
R311	1-249-427-11	CARBON	6. 8K 5% 1/4W F	△R618	1-212-849-00	FUSIBLE	4. 7 5% 1/4W F
R411	1-249-427-11	CARBON	6. 8K 5% 1/4W F	△R619	1-212-849-00	FUSIBLE	4. 7 5% 1/4W F
R501	1-247-713-11	CARBON	1K 5% 1/4W F	△R620	1-217-611-00	RES, METAL PLATE	0. 1 2W
R502	1-249-466-11	CARBON	56K 5% 1/4W	△R621	1-217-611-00	RES, METAL PLATE	0. 1 2W
R503	1-247-710-11	CARBON	560 5% 1/4W				
R504	1-247-710-11	CARBON	560 5% 1/4W	R622	1-247-887-00	CARBON	220K 5% 1/4W
R505	1-247-704-11	CARBON	220 5% 1/4W	R623	1-249-431-11	CARBON	15K 5% 1/4W
				R624	1-249-466-11	CARBON	56K 5% 1/4W
				△R625	1-249-421-11	CARBON	2. 2K 5% 1/4W F

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MAIN **TRANS** **VOL SEL**

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark	
R701	1-247-901-11	CARBON	820K	5%	1/4W	R911	1-247-253-00	CARBON	3.6K	5%	1/2W	
R702	1-249-433-11	CARBON	22K	5%	1/4W	R912	1-247-249-00	CARBON	2.4K	5%	1/2W (G)	
R703	1-249-433-11	CARBON	22K	5%	1/4W	R912	1-247-253-00	CARBON	3.6K	5%	1/2W	
R704	1-249-433-11	CARBON	22K	5%	1/4W	R950	1-247-732-11	CARBON	27	5%	1/2W (G)	
R705	1-249-433-11	CARBON	22K	5%	1/4W	< VARIABLE RESISTOR >						
R711	1-249-433-11	CARBON	22K	5%	1/4W	RV501	1-237-455-11	RES, ADJ, CARBON	500			
R712	1-249-433-11	CARBON	22K	5%	1/4W	RV601	1-237-455-11	RES, ADJ, CARBON	500			
R727	1-249-438-11	CARBON	56K	5%	1/4W	< RELAY >						
R734	1-249-433-11	CARBON	22K	5%	1/4W	RY801	1-515-920-11	RELAY (24V)				
R735	1-249-433-11	CARBON	22K	5%	1/4W	RY802	1-515-793-11	RELAY				
R736	1-249-434-11	CARBON	27K	5%	1/4W	< THERMISTOR(POSITIVE) >						
R742	1-249-405-11	CARBON	100	5%	1/4W F	△THP900 1-806-882-11 THERMISTOR, POSITIVE 2.2						
R743	1-249-435-11	CARBON	33K	5%	1/4W	< TERMINAL >						
R750	1-249-405-11	CARBON	100K	5%	1/4W	TM501	1-537-530-11	TERMINAL BOARD	(G)			
R802	1-249-441-11	CARBON	100K	5%	1/4W	TM501	1-537-530-21	TERMINAL BOARD	(AE1, UK, E, AUSTRALIAN)			
R804	1-247-881-00	CARBON	120K	5%	1/4W	TM501	1-537-530-31	TERMINAL BOARD	(AE2)			
R805	1-249-430-11	CARBON	12K	5%	1/4W	*****						
R806	1-247-754-11	CARBON	1.5K	5%	1/2W (G)	* 1-648-228-11 TRANS BOARD	*****					
R806	1-247-756-11	CARBON	2.2K	5%	1/2W				< CAPACITOR >			
R807	1-247-754-11	CARBON	1.5K	5%	1/2W (G)	C951	1-164-097-11	CERAMIC	0.022uF	50V (G)		
R807	1-247-756-11	CARBON	2.2K	5%	1/2W	< TRANSFORMER >						
R808	1-247-754-11	CARBON	1.5K	5%	1/2W (G)	△T1	1-423-676-11	TRANSFORMER, POWER	(AEP)			
R808	1-247-756-11	CARBON	2.2K	5%	1/2W	△T1	1-423-677-11	TRANSFORMER, POWER	(G)			
(AEP, UK, E, AUSTRALIAN)			(AEP, UK, E, AUSTRALIAN)			△T1	1-423-678-11	TRANSFORMER, POWER	(E)			
R810	1-247-754-11	CARBON	1.5K	5%	1/2W (G)	△T1	1-423-681-11	TRANSFORMER, POWER	(UK, AUSTRALIAN)			
R810	1-247-755-11	CARBON	1.8K	5%	1/2W	*****						
(AEP, UK, E, AUSTRALIAN)			< CONNECTOR >			1-648-227-11	VOL SEL BOARD	(E)				
R811	1-249-423-11	CARBON	3.3K	5%	1/4W F	*****						
R812	1-249-441-11	CARBON	100K	5%	1/4W				< SWITCH >			
R813	1-249-433-11	CARBON	22K	5%	1/4W	CNP10	1-564-321-00	PIN, CONNECTOR	2P			
R814	1-249-433-11	CARBON	22K	5%	1/4W	CNP20	1-568-106-11	PIN, CONNECTOR	4P			
R904	1-249-459-11	CARBON	12K	5%	1/4W	CNP30	1-564-687-11	PIN, CONNECTOR	3P			
R905	1-249-459-11	CARBON	12K	5%	1/4W	*****						
R907	1-247-249-00	CARBON	2.4K	5%	1/2W (G)	△S2 1-572-009-11 SELECTOR, VOLTAGE (VOLTAGE SELECTOR)						
(AEP, UK, E, AUSTRALIAN)			< SWITC>			*****						
R907	1-247-253-00	CARBON	3.6K	5%	1/2W							
R908	1-247-249-00	CARBON	2.4K	5%	1/2W (G)							
R908	1-247-253-00	CARBON	3.6K	5%	1/2W							
(AEP, UK, E, AUSTRALIAN)			< CONNECTOR >									
R909	1-247-249-00	CARBON	2.4K	5%	1/2W (G)							
R909	1-247-253-00	CARBON	3.6K	5%	1/2W							
(AEP, UK, E, AUSTRALIAN)			< SWITC>			*****						
R910	1-247-249-00	CARBON	2.4K	5%	1/2W (G)							
R910	1-247-253-00	CARBON	3.6K	5%	1/2W							
(AEP, UK, E, AUSTRALIAN)			< SWITC>			*****						
R911	1-247-249-00	CARBON	2.4K	5%	1/2W (G)							

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Ref. No.	Part No.	Description	Remark
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MISCELLANEOUS

- △AD1 1-569-007-11 ADAPTER, CONVERSION 2P (E)
- △CP1 1-575-651-21 CORD, POWER (AEP, G)
- △CP1 1-696-027-11 CORD, POWER (E)
- △CP1 1-696-586-11 CORD, POWER (UK)
- △CP1 1-696-845-11 CORD, POWER (AUSTRALIAN)

ACCESSORIES & PACKING MATERIALS

- 1-467-107-11 REMOTE COMMANDER (RM-S312)
- 3-756-853-11 MANUAL, INSTRUCTION (English, French, Spanish, Portuguese) (AEP, UK, E, AUSTRALIAN)
- 3-756-853-41 MANUAL, INSTRUCTION (German, Dutch, Swedish, Italian) (AEP)
- 3-756-853-51 MANUAL, INSTRUCTION (German) (G)
- * 4-931-988-71 INDIVIDUAL CARTON
- 4-941-762-11 COVER (MLY), BATTERY
- * 4-959-584-01 CUSHION

HARDWARE LIST

- #1 7-685-646-79 SCREW +BTP 3X8 TYPE2 N-S
- #2 7-682-560-04 SCREW +BVTT 4X6 (S)
- #3 7-621-849-00 SCREW (BV/RING)
- #4 7-685-647-79 SCREW +BVTP 3X10 TYPE2 IT-3

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